Amendments to the Specification

The paragraph starting at page 17, line 21 and ending at page 18, line 15 has been amended as follows.

In the diagram, reference numeral 1 denotes a head unit formed by forming an ink tank (not shown in the diagram) and an ink jet recording head 2 into a single integrated unit. Numeral 3 denotes a carriage, mounting the head unit 1 which is provided with four ink jet recording heads that record in color: Bk (black head 2-1, Y (yellow) head 2-2, M (magenta) head 2-3 and C (cyan) head 2-4 (see Fig. 3). Furthermore, the carriage 1 is linked to a portion of a drive belt 4 that transmits a rotary drive force of a carriage drive motor 5, and moreover, is movably mounted with respect to guide shafts 6A, 6B positioned parallel to a scanning direction. The rotation of the carriage drive motor 5 causes the ink jet recording heads 2-1, 2-2, 2-3, 2-4 to move back and forth across along a platen 7 disposed opposite the ink ejection surface, so as to travel across an entire surface of a recording sheet (a recording medium) supplied from a medium feed apparatus ( not shown in the drawing) and carry out recording to the ~~head~~ recording sheet.

The paragraph starting at page 28, line 7 and ending at line 21 has been amended as follows.

It should be noted that the recording head 2-1 is mounted on the carriage 3, and discharges ink drops while being transported in a direction substantially perpendicular

to the direction in which the recording sheet that is the recording medium is transported. At this time, the need to disperse the supply of energy needed to supply and to discharge the ink dictates that drops of ink are not to be discharged ~~form~~ from every nozzle in each of the two rows at the same time. Instead, the 324 x 2 = 648 nozzles are divided into 12 blocks (54 nozzles/block) per discharge cycle, so that sequential discharge of ink is accomplished in block units, that is, on a per-block basis, in one discharge cycle.

The paragraph starting at page 33, line 16 and ending at page 34, line 7 has been amended as follows.

HTT_$C_0$ signal 37-13 is a color recording head heat trigger signal and BT_$C_0$ signal 37-16 is a color recording head block trigger signal. The dataset_win signal 37-11 indicates a data set window used to set color image data for the RAM 33-2, the read_win signal 37-14 is likewise used to read color image data from the RAM 33-2, and the heat_win signal 37-17 indicates an 8-bit heat window used to activate the color recording heads. The individual window signals operate under an AND condition in tandem with their corresponding trigger signals. Since the data processing operations are conducted in parallel, the respective window signals depicted in the diagram are synchronized with the scan of the carriage 3 and are activated as necessary to control the circuit block drive timing. Additionally, the window signals are each 8-bit signals, and all are output from the timing control circuit 3702.

The paragraph starting at page 37, line 11 and ending at line 27 has been amended as follows.

The RAM write circuit 3703 is provided with a write control circuit 3712 that carries out write control, including address control, for a block data selector 3710 that divides the image data from the preceding stage in units of nozzle rows ~~the~~ into the units of blocks, a column counter 3711 that counts the number of dots in the data of the column units, and the RAM 33-2. The RAM write circuit 3703 is activated when the data set window signal dataset_win 37-11 and the heat trigger signals HTT_Bk 37-12 (for black) and HTT_$C_0$ 37-13 (for color) are ANDed, and processes data for each color in units of one column. Additionally, simultaneous with writing of data to the RAM 33-2, the RAM write circuit 3703 is also provided with a function that counts and retains the number of pieces of data per column.

The paragraph starting at page 60, line 6 and ending at line 15 has been amended as follows.

At this time, although the wiring resistance with respect to the heaters 1-N in the recording head 2 changes depending on the distance from the recording head 2 electrode to the individual heater, in order to prevent such fluctuations it is preferable to adjust the wiring resistance within the recording head by, for example, changing the thickness of the wiring, so that the wiring resistance becomes the same for all heaters.

The paragraph starting at page 66, line 26 and ending at page 67, line 10 has been amended as follows.

To continue, the voltage drop amount (Ave_Vdown) over the smooth current portion is acquired from another LUT in a step S203 based on the counted number of dots in the 10 columns counted ~~ion~~ in the 600 dpi resolution encoder timing process. Next, the timing (PT02) of the introduction of the main heat pulse 1902 is determined from a total voltage drop amount (Vdown) obtained by adding the voltage drop amount (Bit_Vdown) across the pulse current portion and the voltage drop amount (Ave_Vdown) over the smooth current portion in a step S204.

The paragraph starting at page 69, line 2 and ending at line 15 has been amended as follows.

The head index and the recording head 2 temperature are key pieces of information used to search the LUT stored in the ROM 1402 (see Fig. 14) provided on the recording apparatus control circuit. The LUT ~~contain~~ contains information used to determine the pre-heat pulsewidth, the main heat pulsewidth and the pulse interval, keyed to a plurality of temperature ranges and a plurality of head indexes. Accordingly, appropriate pre-heat and main heat pulsewidths and pulse intervals can be selected using the head index and the measured recording head temperature. It should be noted that the LUT comprises the three tables shown in Figs. 26, 27 and 28.

The paragraph starting at page 70, line 16 and ending at page 71, line 4 has been amended as follows.

First, the table shown in Fig. 26 is searched and, based on the head index and recording head 2 temperature, the temperature-linked pulse No. is determined (in step S303 in Fig. 25). Next, using the determined pulse No. as a key, the table shown in Fig. 27 is referenced and the intervals ~~Pt00~~ PT00, PT01 and PTM00 are set (in step S304). Finally, using the temperature-linked pulse No. as a key, the table shown in Fig. 28 is searched and a PT02 consisting of the above-described 30 ranks of total voltage drops "Vdown" is selected and set as the PT02 selection table. The PT02 selection table set is used to determine the PT02 interval in the block trigger signal "Trig" introduction timing.

The paragraph starting at page 73, line 17 and ending at line 27 has been amended as follows.

According to the third embodiment as described above, the voltage drop amount over the pulse current and the voltage drop amount over the smooth current are determined independently, so the total voltage drop through the drive timing can be determined accurately and, accordingly, the pulse can be controlled as appropriate, depending on the total voltage drop amount, that is, the appropriate pre-heat pulsewidth, main heat pulsewidth, pulse interval and compensation pulsewidth can be determined.

The paragraph starting at page 88, line 17 and ending at line 26 has been amended as follows.

The recording mode of the recording apparatus is not limited to a recording mode solely for mainstream black-and-white recording. Rather, the apparatus adopted can be one equipped with at least one recording head for a plurality of different colors or one full-color print head using mixed colors, ~~through~~ though it is desired that this be achieved by a print head having an integrated structure or by a combination of a plurality of print heads.

The paragraph starting at page 90, line 26 and ending at page 91, line 5 has been amended as follows.

It should be noted that the configurations and operations described above with reference to the individual embodiments, whether practiced individually and separately ~~are~~ or whether practiced through an appropriate combination of several embodiments, are within the spirit and scope of the present invention.